

Heinai SHIBUICHI*: **Two new species of *Pertusaria***
(Lichens) in the Bonin Islands**

四分一平内*: 小笠原諸島産トリハダゴケ属地衣の 2 新種**

Species of the genus *Pertusaria* are widely distributed in the world and are commonly found on various rocks and tree-trunks. Although Japanese species of the genus were revised by Oshio (1968), his study did not include those species of the Bonin Islands, which are located about 1000 km south of Japan proper. In the present paper, the writer wish to describe two new species of *Pertusaria* from the Bonin Islands, which both belong to subgenus *Porophora* (Müll. Arg.) Oshio. These species were found among specimens of the genus preserved in TNS.

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(1) ***Pertusaria kashiwadanii*** Shibuichi, sp. nov. (Figs. 1, 2)

Thallus corticola vel saxicola, stramineo- vel albo-viridulus, laevigatus vel inaequaliter asperulus, nitidulus, tuberculis ornatus, modice incrassatus, 0.1-0.3 mm crassus, tuberculis erumpentibus et sorediatis ad apices; stratum corticale subchondroidium, 15-20 μ crassum; medulla alba et crystallae continens, sed inferna tantum flavo-rubescens et K+ violascens. Verrucae apotheciigerae hemisphaericae vel subglobosae, congestae vel dispersae, basi plus minusve constrictatae, vertice deplanatae, vel demum concaviusculae, in superficies tenuiter fissae, 0.7-1.2 mm latae, 0.3-0.7 mm altae, 1-2 discos gerentes; discus minutissimus, niger, rotundatus, ostiolioides, 0.1-0.2 mm latus, margine annulus et flavo-rubescens; epithecium brunescens, K+ violascens; excipulum proprium indistinctum, subchondroidium, 30-50 μ crassum; asci

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clavuliformis, membranis incrassatis, J+ caerulescentibus; sporae 4-nae, raro 3- vel 2-nae, ellipsoideae, decolores, 100–160 μ longae, 30–50 μ latae, membranis duplicatis, 4–8 μ crassis, membranis interioribus leviter transversim notatis.

Lichen substances: Stictic acid, thiophaninic acid and an anthraquinone. This new species is characterized by the accumulation of orange-red pigment at the lower half of the medulla. The orange-red pigment may be considered to be an anthraquinone, because of the K+ redish-violet color reaction. This pigment appears as an orange-red spot at Rf. 0.40 on the thin layer chromatograms developed by a mixture of *n*-hexan, ethyl-ether and formic acid (10: 8: 1) without heating. The spot changes into bluish green color by heating after spraying with 10% sulphuric acid. The occurrence of anthraquinone has never been reported in species of *Pertusaria*.

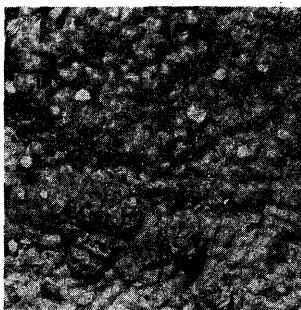


Fig. 1. The holotype of *Pertusaria kashiwadanii* Shibuichi, ($\times 2.5$).

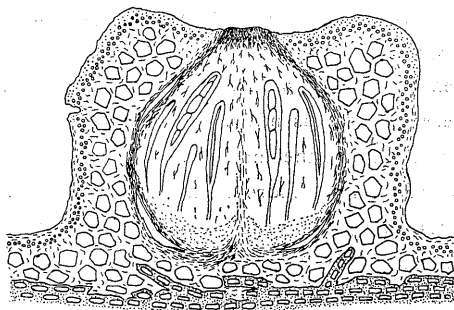


Fig. 2. Vertical section of a fertile verruca of *Pertusaria kashiwadanii* Shibuichi, ($\times 50$).

The present new species may be confused with *P. quartans* Nyl. and *P. tuberculifera* Nyl. var. *nakamurae* Räs., because they all have cylindrical or subclavate tubercles on the thalli. However, the tubercles of *P. kashiwadanii* are often sorediate at the apices, while those of other taxa are not at all sorediate.

On the other hand, *P. kashiwadanii* resembles *P. glauca* Zahlbr. in having similar large fertile verrucae. In *P. kashiwadanii*, the discs of apothecia are almost black and the medulla of the thallus orange-red in the lower half, containing an anthraquinone along with stictic and thiophaninic acids. In *P. glauca*, in contrast, the discs are brownish and the medulla is white

throughout, containing only stictic and thiophaninic acids.

Specimens examined. Mt. Mikazuki, Chichi-jima Island, the Bonin Islands, on bark of *Hibiscus glober*, H. Kashiwadani 13842 (Holotype in TNS). The same locality, on rock, H. Kashiwadani 13899 (TNS). Mt. Tsutsuji, Chichi-jima Island, on bark of tree, S. Kurokawa 77073 and 77074 (TNS). The same locality, on rock, S. Kurokawa 77076-B (TNS). Minami-Fukurozawa, Chichi-jima Island, H. Kashiwadani 14140 (TNS). Miyanohama, Chichi-jima Island, on bark of *Calophyllum inophyllum*, H. Kashiwadani 14023 (TNS). En rout from Miyukihama to Cape Minamizaki, Haha-jima Island, H. Kashiwadani 14087 (TNS).

(2) *Pertusaria boninensis* Shibuichi, sp. nov. (Figs. 3, 4)

Thallus saxicola, albicans vel albo-viridulus, inaequaliter asperulus, incrassatus, 0.2-0.5 mm crassus, stratum corticale prosoplectenchymatum, 20-30 μ crassum; medulla alba, crystallina continens. Verrucae apotheciigerae magnae, dispersae, depresso-hemisphaericae, basi constrictae, vertice plus minusve concavae, in superficies laevigatae, 1.5-3mm latae, 0.7-1mm altae, 3-10 discos gerentes; discus minor et ostioloïdes, ad centrum niger, rotundatus, 0.2-0.4 mm latus; epitheciũ brunescens, K+violascens; excipulum proprium indistinctum, subchondroidium, 20-30 μ crassum; asci clavuliformis, membranis incrassatis, J+ caerulescentibus; sporae, 4-nae, raro 3-vel 2-nae, ellipsoideae, decolores, 100-130 μ longae, 30-45 μ latae, membranis duplicatis, 4-8 μ crassis, membranis interioribus leviter transversim notatis.

Lichen substances: Stictic acid and thiophaninic acid.

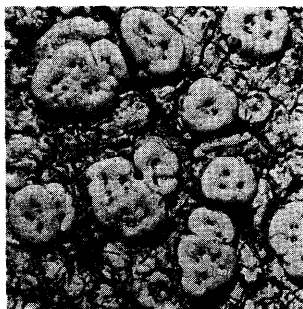


Fig. 3. The holotype of *Pertusaria boninensis* Shibuichi, ($\times 2.5$).

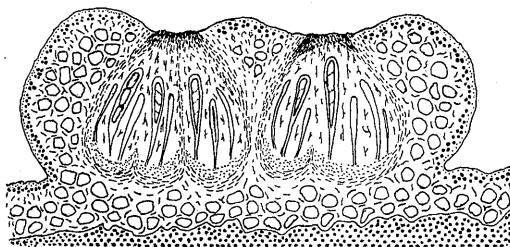


Fig. 4. Vertical section of a fertile verruca of *Pertusaria boninensis* Shibuichi, ($\times 25$).

This new species is characterized by the large fertile verrucae, which are depressed-hemisphaerical. The verrucae are smooth on the surface, constricted at the base, and have distinct, large, black discs near the top. The disc is usually more or less concaved at the center.

At present, *P. boninensis* is known only from the type locality, where it seems to grow often along with *P. kashiwadanii*. However, it is easily distinguished from the latter species by the larger fertile verrucae and by the lack of anthraquinone.

Specimen examined. Mt. Tsutsuji, Chichi-jima Island, the Bonin Islands, elevation about 260 m, on rock, S. Kurokawa 77076-A (Holotype in TNS).

Literature cited

Oshio, M. 1968. Taxonomical studies of the family Pertusariaceae of Japan. Journ. Sci. Hiroshima Univ., Ser. B. Div. 2, 12: 81-163.

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小笠原諸島産のトリハダゴケ属 (*Pertusaria* DC.) 地衣 2 新種を記載した。いずれも subgenus *Porophora* (Müll. Arg.) Oshio に属する。

(1) *Pertusaria kashiwadanii* Shibuichi, ウチキトリハダゴケ (新称)。地衣体が淡黄緑色でその下層および子器盤 (disc) の周辺部が赤褐色を呈してアントラキノンを含むこと、地衣体表面に疣状突起 (tubercules) を散在し、時にその先端が壊れてソラリア状になることなどの特徴をもつ。Fertile verruca に 1~2 個の子器を有し、黒色斑点状の子器盤をもつ。子囊中に通常 4 個の胞子を産する。スチクチン酸、チオフィェニン酸、アントラキノンを常成分とする。父島および母島に産し、樹皮稀に岩石に着生している。

(2) *Pertusaria boninensis* Shibuichi, オガサワラトリハダゴケ (新称)。大形で扁平された fertile verruca をつけ、多数 (3~10個) の子器をもつことを特徴とする。黒色斑点状の子器盤をもち、子囊中に通常 4 個の胞子を産する。スチクチン酸およびチオフィェニン酸を常成分とする。いまのところ父島のタイプ・ロカリティにみられるだけである。